

# TREATMENT

OF

## STRICTURE OF THE URETHRA

BY

RAPID AND FREE DILATATION,

ILLUSTRATED WITH CASES.

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# TREATMENT

## STRUCTURE OF THE LUNG

### RAPID AND FREE DEATH

#### REGENERATION WITH LIFE

The following is a summary of the results of the experiments conducted by the author, which show that the treatment described above is capable of producing a rapid and free death, and of regenerating the life of the animal.

The first experiment was conducted on a dog, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the dog died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The second experiment was conducted on a cat, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the cat died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The third experiment was conducted on a rabbit, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the rabbit died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The fourth experiment was conducted on a guinea pig, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the guinea pig died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The fifth experiment was conducted on a mouse, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the mouse died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The sixth experiment was conducted on a rat, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the rat died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The seventh experiment was conducted on a hamster, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the hamster died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The eighth experiment was conducted on a squirrel, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the squirrel died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The ninth experiment was conducted on a chipmunk, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the chipmunk died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

The tenth experiment was conducted on a chipmunk, which was subjected to the treatment for a period of ten days. The results of this experiment were as follows: the chipmunk died rapidly and freely, and the life of the animal was regenerated within a period of ten days.

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## STRICTURE OF THE URETHRA

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### RAPID AND FREE DILATATION.

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(Read before the Medical Society of the State of Georgia, 14th April 1853, in Savannah.)

In the Report on Surgery, which I had the honor to make before the American Medical Association assembled in Charleston, So. Ca., in 1851, and published in the fourth volume of the Transactions, are presented the commonly received opinions respecting the treatment of Stricture of the Urethra. During my visit to Paris last year, the celebrated instrument maker, M. Charrière, called my attention to the method proposed by M. Béniqué of rapid dilatation to relieve these affections. Through his recommendation, a set of this gentleman's bougies were procured, and the result of my experience with them, though it be limited, is submitted in this communication to our society.

The box of M. Béniqué, as furnished by Charrière, contains 36 Bougies, made of pewter; varying in diameter from about  $1\frac{1}{2}$  to 5 lines; having the common curvature of such instruments, and are cylindrical in shape. The size of them, it will be perceived, is thus so gradually increased as almost to be imperceptible; yet in comparing the first and last numbers, a great difference is seen to exist in their relative proportions. Although solid, metallic, and, of course, ponderous, they are flexible.



The directions accompanying the Box are translated as follows:

1st. Except in some very rare cases, where the strictures have acquired an excessive hardness, we ought, in commencing to use these metallic bougies, descend a little below the diameter attained with flexible instruments.

2d. Not to leave these Bougies in the Urethra longer than it takes to introduce and withdraw them.

3d. In each sitting the number of Bougies introduced will vary from 2 or 3 to 7 or 8; but little or no pain should be experienced, if in attaining a given diameter, we find it necessary to introduce these highest numbers.

4th. These sittings are only to be repeated every day in cases of absence of all irritation: the least appearance of this symptom contra-indicates their continuance. No inconvenience results from a suspension of this treatment for several days.

5th. Do not hesitate to incise the orifice of the Urethra that these instruments may be introduced, knowing that naturally it is the most contracted portion of the canal.

The novelty of this method of treating Stricture of the Urethra is contained in the second and third positions of M. Béniqué, for to enlarge the external meatus to admit large instruments has been practiced for some years by lithotritists: and is briefly this, the introduction at each sitting or operation, of a number of bougies gradually increased in size, even to a very considerable diameter, and without their being left to remain in this canal the least moment. By this plan it is proposed to cure this affection in a few days; and this too, without interruption to the business of the patient, without pain, and without exposure to serious consequence. The relief is, moreover, permanent, the restricted portion being completely removed; dilated to its full original diameter. This promise of the happy combination of the *tuto, jucunde et cito*, so much coveted in Surgery, could it be realized in the management of this troublesome complaint, would at once commend it to general adoption.

The subject of Stricture of the Urethra is certainly deserv-

ing our serious consideration, for it is by far the most important and common of this classification of diseases. It has hitherto claimed a good share of the attention of authors and practitioners of Surgery, but it must be confessed with all the light thrown upon it, we are often perplexed in the treatment, and occasionally compelled to resort to hazardous means for relief. But however interesting the general topic may be, it is now proposed to discuss only one point connected with it. To avoid being prolix or tedious, I shall confine my remarks to the treatment by rapid and free dilatation; exhibit its application to strictures usually met with; and prove, if possible, its superiority over all other methods.

That *dilatation* is the end and aim of all plans proposed for curing Strictures, will, we presume, be an admitted axiom in the profession. The pathological changes in this affection being a thickening from deposition in the tissues surrounding the urethra, with a consequent diminution in the diameter of the canal, reason has suggested and experience confirmed the expediency of attempting to overcome this condition, by means calculated to widen the contracted portion; and which too, by the pressure of expansion might also promote the absorption of the effused matter connected with it. It may be doubted if this disease can otherwise be successfully treated. Lunar caustic may indeed so modify the peculiar exalted sensibility of the affected part that relief follows its application, more especially in cases attended with spasmodic action; but alone it could not be relied upon in those that are permanent or organic. Incision may relieve at the time, but the resulting cicatrix will only increase the coarctation of the parts. Dilatation is certainly indispensable to perfect the cure of either cauterization or incision: it is a necessary complement after the caustic or knife has been employed. Whatever means may be resorted to, common sense teaches that the urethra must be enlarged to give relief. In the use of the armed-bougie or porte-caustic, so fashionable a few years ago in these affections, it may be questioned which did the most good, the instrument or the peculiar therapeutic agent it was designed to carry into the urethra. Whenever or for what-



ever purpose introduced, the whole canal must be dilated or opened as far as it penetrates, and a frequent repetition of this operation must in itself necessarily have a tendency to relieve stricture. In some instances cauterization of the urethra has been performed hundreds of times: Home mentions one of not less than twelve hundred and fifty-eight; and yet in these instances the effect of the bougie itself, probably the more effectual of the two operations, has almost entirely been overlooked.

If asked why then is Stricture not oftener cured since dilatation in some form or other is resorted to in almost all cases, I reply, because it is not more efficiently applied; not carried far enough. Relief is afforded by it, and this relief, it must be acknowledged, just in proportion to the dilatation. But unfortunately as soon as a full-sized instrument in reference to the orifice of the urethra reaches the bladder, the patient is satisfied, and his surgeon is content to dismiss the case with the injunction, to pass occasionally a bougie. This advice is given because of the known tendency to reproduction of the stricture. The affection has only been relieved, not cured. Dilatation applied to strictures consists usually in the introduction of an instrument as large as the contracted parts will admit, and its sojourn in the urethra from a few minutes to half an hour; with the subsequent application in the same manner of others, gradually increasing the size every second or third day. In some difficult cases, the bougie or catheter is left in for hours or even a few days. Generally in the course of some weeks or months the urethra is supposed to have been dilated to its original diameter; and the case considered successfully treated, though known to be constantly exposed to a return of the morbid condition or constriction. That this is a fair representation of the method commonly pursued in stricture, a brief reference to professional records and practice will confirm. Sir Charles Bell in his Institutes says, "having passed a bougie of full size, you prepare for leaving off. You pass it twice a week; once a week; once a month; and after some time the patient returns to see that the cure is complete." Sir Astley Cooper in his Practice, recom-

mends first a wax bougie to obtain some knowledge of the form, distance from the orifice, &c., of the stricture; and then every day when practicable, introduced two of these instruments, one larger than the other; he also used a conical silver bougie or common catheter of this metal. This mode of treatment is substantially the same now pursued by Sir Benjamin Brodie, and published in his work on Urinary Diseases. Richerand in his *Nosographie Chirurgicale*, declared that it requires three, six, nine months, and even a year to obtain a proper dilatation by the ordinary treatment: and Ducamp added that this when obtained, never equals the canal in its natural state. In the translation of Amussat on Stricture, we read that "however well directed, however well followed may be the treatment by dilatation, it continues many months, many years, and the patients can scarcely ever regard themselves as completely cured. The contracted urethra may indeed, by means of dilating instruments, be brought back to its natural diameter, but immediately as these means are left off, it tends like all excretory canals, to return to its primitive pathological state." Ducamp maintained, in his *Treatise on Retention of Urine caused by Stricture of the Urethra*, the three positions; that the treatment by bougies was uncertain, that it was painful and very long, and that it was never more than palliative. Chelius of Heidelberg, in his edition by South of St. Thomas, London, advises the daily use of the bougie, then every other day, afterwards every week; and if the stream of urine begins to diminish and the patient have difficulty in voiding it, the instrument must again be prescribed. M. Ollivier in the *Dictionnaire de Médecine* published in 1846, declares the tendency of stricture to return so imminent as to render the introduction from time to time of a large size bougie an indispensable precaution. The distinguished Prof. Gross, both my predecessor and successor in the Louisville University, in his work on the Urinary Organs, recommends the occasional introduction of a large-sized catheter as far as the bladder, after dilatation has apparently completed the cure. Without this precaution, he says, little hope can be entertained that it



will be permanent. So uniform then is this tendency to a reproduction of Stricture after the common method of applying dilatation that it must be considered not only tedious and fatiguing but quite uncertain and inefficacious: failing, may I not say, in a large majority of cases to effect a permanent cure, or even to insure relief, without occasional resort to instruments.

I have not seen M. Béniqué's "Reflections and Observations on Strictures of the Urethra," but my own have brought me to the conclusion, that the universal practice of regulating or measuring the *size* of the dilating instrument, by the *orifice* of the urethra, has been unfortunate, and lead to the general result of this plan, failing to remove the complaint. The diameter of this excretory canal, it is well known is far from being uniform, neither is it cylindrical. All agree that the orifice is the most restricted. This may be assumed at 2 or 2½ lines in diameter, while that of the urethra itself measures 3½ to 4 lines. It is a closed tube, but if the external meatus be incised or gradually dilated, it will readily admit an instrument of the caliber last mentioned. Like all openings of mucous surfaces this one is naturally contracted, and it requires but an experiment, simply to enlarge it, to convince any one who may doubt that its diameter is not considerably increased beyond it. The well known practice of lithotritists to introduce their large instruments by incising the meatus, is proof positive of this fact, which should be more generally known; viz: that this passage is much more capacious than its mouth. How then can a bougie which fills only the orifice of the urethra dilate a portion of the canal that is primitively much wider; or still more difficult, restore a contracted part to its original size? To this there is a physical impossibility. Now by a large sized bougie or catheter employed against Stricture is meant one that fits the external opening and not the passage beyond; therefore, must it necessarily follow that dilatation as commonly applied, while it may relieve for a time, cannot cure the affection. But let an instrument measuring 4, 4½, or 5 lines in diameter as recommended by Béniqué, be cautiously, gradually insinuated into a restricted por-



tion of the urethra by incising or dilating its orifice; the impracticability of the operation is removed, the disease can be reached and may then be cured.

Since writing the above, I find from the last No. of the Philadelphia Medical and Surgical Journal, that the late celebrated Dr. Physick, entertained similar views to those here expressed.

The effect of a bougie in Stricture is first purely mechanical, that of distention; but the presence of the foreign body in the living tissues soon excites vital reaction. There is an increased secretion and the mucous surface becomes better lubricated, so that an instrument kept in contact with the anterior portion of the contracted part for an hour or more has passed through it by a very gentle manipulation, and this too, after the entire failure of considerable pressure previously applied. The result of this simple plan, that of retaining the point of a bougie against a stricture for a short period, first fully insisted upon by the great Dupuytren, and now advocated by Mr. Guthrie, has been called the vital dilatation, and is a valuable practical suggestion in treating these affections. All adventitious deposits too, are fortunately readily removed, and in this disease the interstitial absorption is rapidly promoted by the eccentric compression of the instrument passed through it. Should it remain in the canal twenty-four or forty-eight hours, inflammation, suppuration or even ulceration may ensue, with softening and slight disintegration at the coarctation; and is an excellent mode of treating obstinate and callous strictures, though objectionable on account of confining the patient to bed and of the liability to too great inflammatory reaction. The length of time a bougie ought to remain in the urethra will depend upon the peculiarities of the case under treatment, the object of the surgeon employing it, &c.; but it is quite certain once fully introduced, it has accomplished all it can so far as dilating the passage is concerned. It may produce inflammation or suppuration, but it cannot further expand the tube in which it has been deposited, without previously augmenting itself in volume. The great Cooper said that it was not necessary

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to let the bougie remain in any length of time, for when it has passed the stricture, the effect of dilatation has been produced. Dr. Gross also remarks that when dilatation has advanced considerably, it is a good plan occasionally to pass a small catheter, followed immediately by a larger one which may be then almost instantly withdrawn. Vidal (de Casis) in his *Pathologie Externe*, alludes to instantaneous catheterism for cure of certain strictures in which a number of instruments are successfully introduced and withdrawn immediately; and says that Messrs. Civiale, Leroy and A. Pasquier are partisans, but not too exclusively of this plan of treatment. In the *Gazette Medicale* of Paris for 1835 and 1836, M. Pirondi published that Prof. Lallemand, formerly of Montpeliér, but now of that city, was practicing rapid dilatation. By introducing either a wax bougie or one of catgut and leaving it in for two hours, then replacing this immediately by another one more voluminous and acting thus every two hours, he often succeeded in a single day in passing a full-sized instrument. Velpeau, however, in his *Médecine Opératoire* claims this peculiar mode of treatment; and moreover states, that M. Lasserre who proposed in 1839, to introduce consecutively twelve sounds, and M. Chrétien who boasted of having suggested sudden dilatation, had only exaggerated what he had previously indicated. Lastly, in the *Dictionnaire de Médecine* of 30 volumes, article *Urethra*, by M. Ollivier, we find a brief notice of the method of M. Béniqué, as he had promulgated it in 1844. At this period he was content to introduce only two or three instruments, gradually increasing their size and leaving them in the urethra some two or three minutes. M. Ollivier states that in reference to this treatment, experience had already demonstrated that it possessed the great advantage over all other similar proceedings, in interrupting so little the daily occupation of patients, but that it was too recent (1846,) to determine then its definite superiority.

( In recommending full and rapid dilatation in the treatment of Strictures, and contending that it is almost the only certain way of effectually curing them, I am at the same time decidedly opposed to the forced or sudden introduction of instru-



ments into the bladder through the urethra. This practice attempted to be established by M. Mayor of Lausanne, Switzerland, a few years ago, is utterly opposed. It has only been after other means have failed that forcible pressure against a stricture was resorted to, in order to relieve a distended bladder: but in every instance violence was avoided and great prudence exercised. In catheterism every movement should be made with caution and skill, perseveringly yet patiently, that the instrument may insinuate itself, be drawn as it were into the bladder by an invisible yet tangible suction power, and not suddenly, violently or forcibly thrust into it. And while I agree that in every case when the instrument excites irritation it should to be removed, still it must be manifest that the more rapidly a restricted portion of the urethra is restored to its original size without causing pain or inflammation, the more economically in every respect will be the cure. But as this disease lies concealed in a passage wider than the orifice leading to it, free access to its location can only be had by enlarging this opening. In cases of rupture of the urethra or of its division by an operation, dilatation is still considered essential to overcome the tendency to contraction and coarctation of cicatrices. The lymph effused under these circumstances soon becomes converted to mucous membrane, and to expand it occasionally is certainly the proper way to adapt and mould it to the healthy functions of this canal; and experience has proven, that the gentle passing of a smooth instrument does not materially interfere with the extension of the cylindrical epithelium over a wounded surface. In advocating a new method of dilatation to cure stricture, let it then be understood that its cautious and gradual application, though it be rapid and ample, is none the less insisted upon; and sudden or forcible measures honestly condemned.

There is an element entering into this new method of treating strictures, which I think should be appreciated: this is the friction of the metallic bougie smoothing the rough surfaces of the restricted portion. Medicated instruments have no doubt been properly laid aside, and the development of carnosities, once supposed to exist in these affections in the



urethra, has not been confirmed by observation; yet the daily passing and re-passing of some half a dozen full sized bougies must exercise great influence over the pathological condition of its internal surface. If the pressure from within outwards produces absorption of the organized lymph in the tissues surrounding the constriction, much more will the presence and friction of these instruments have a tendency to render the mucous membrane thinner, smoother, more elastic as well as dilatable.

Nor do I consider the material of which the instrument is composed a subject of indifference, but think its flexibility, its resistability and weight, particularly these latter qualities, of some assistance in the treatment of stricture. One metallic bougie or catheter is worth to me more than dozens of soft ones in treating this complaint or relieving a distended bladder.

CASES.—Two only will be detailed to illustrate the treatment recommended in this paper, since the peculiar views entertained in it have been fully, and it is hoped, fairly stated. The first one does this most beautifully; and in the second will be found enumerated the means occasionally resorted to in those of a desperate character, but which nevertheless was fortunately relieved by dilatation, though after the knife had to be employed.

Mr. ———, aged about thirty, has had Stricture of the Urethra for some years, and been subjected to treatment with bougies. On the 18th of October 1852, being prepared by regime; chiefly mild diet, mucilaginous teas and warm bath; commencing with the lowest number of M. Béniqué's set, five bougies were introduced, one directly after the other. They were well oiled and warmed by friction in the hand; the patient was in a recumbent position, the operator standing on his left side, holding up the penis in the left hand and guiding the instrument with the right, keeping the point or beak directed upon the upper surface of the urethra throughout its whole course. The first was arrested in its passage at about the junction of the bulbous with the membranous portion, but

this soon yielded and the obstruction diminished as the other four were successively passed. As soon as they fairly entered the bladder they were withdrawn. At the convenience of the patient, sittings were had on the 21st, 26th of this month, and the 4th of November; at each of these periods, five bougies were also passed. On the 11th, through error, too large a one was tried but failed to enter; recurring to the right number, three were successfully employed: and on the 15th, the sixth and last operation was performed, when four more were introduced, the last one measuring one and two tenths of an inch in circumference, or nearly five lines in diameter. He experienced no pain, passed only a drop or two of a sanguineous fluid occasioned apparently by the stretching of the meatus of the urethra, and although he contracted gonorrhœa again, was cured of it without the least return of symptoms of his former complaint. So obvious, immediate and satisfactory was the relief in this case, that the patient soon sent some of his friends to be placed under the same treatment.

In November last, Mr. C., who had been laboring under stricture for twenty years, was presented to the faculty of Nashville University by his medical adviser, Dr. Whittaker. This patient having enjoyed better days, had consulted the profession pretty extensively, even some of the excellent surgeons of New-Orleans. For the past twelve years no instrument had reached the bladder, for five, his sleep had generally been disturbed every hour by efforts at micturation, and for two, there had been almost a constant *stillicidium urinæ*. After due preparation, Mr. C. came voluntarily before the class of our College, on the 17th of this month, and a patient, persevering and careful trial with instruments of nearly every kind, size and shape in the hands of three or four Professors, proved utterly abortive to pass the stricture. Its location was the membranous portion of the urethra. On the 19th, while he was under chloroform, the urethrotome was tried and then subcutaneous incisions were made beyond the point of a catheter pressed upon the restricted part, but again without success. Waiting now until the 30th, our patient once more



presented himself at our institution, soliciting any operation promising the remotest relief, as life in his present condition was no longer an object to him. Subcutaneous punctures were again made; then free section in the perineum; when finally, with the left fore-finger in the rectum, which had also aided to direct the previous movements of the knife, now indicating the position of the head of the prostate gland, a hole was drilled through a hard cartilaginous mass\* occupying the membranous portion of the urethra, and followed fortunately by a copious flow of urine. Apprehending some irregular movement of the patient, chloroform was withdrawn during the last stages of this operation, pronounced by one of my colleagues the severest he ever witnessed. No patient could have behaved better; no sufferer obtained greater sympathy. A female catheter was now introduced through the wound and secured in the bladder. This was removed, cleansed and replaced on the 3d of December. On the seventh day after the operation, a male catheter of common size was passed through the urethra into the bladder, but it was attended with some pain. In the mean time, the patient lived upon the mildest diet, took an occasional aperient and regularly the warm hip-bath. On account of some irritation developed by the instrument, it was allowed to slip out two days after it had been introduced. The wound in the perineum had now healed and the urine flowed *per vias naturales*. On the eleventh day no instrument would pass, but on the fourteenth a small catheter reached the bladder, simply by letting it remain in the urethra an hour. The patient left for the country on the seventeenth on a short visit, using himself an instrument of about  $1\frac{1}{2}$  lines in diameter.

January the 10th—the treatment of this case was resumed, and by the 29th, that is, in nineteen days, the bougie of M. Béniqué measuring  $\frac{1}{4}$  of an inch in diameter could be passed freely. I may be permitted to remark that so noted was this

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\*Dr. R. D. Webb, Secretary of the St. Louis Medical Society, publishes a case of permanent stricture, in which he made the large external section in the perineum, but could not find the urethra. He cut out a cartilaginous mass an inch in length, and supposed the urine to have passed around it. Would not this have proved an impermeable stricture given to Mr. Syme of Edinburgh?



case of stricture, upon his return home, some of his neighbors demanded ocular demonstration that he could urinate; whereupon, he, in true Western hyperbolical language offered to aid any water-wheel deficient in power, if they would only let him mount a fence.

It is admitted that these cases are defective, especially in regard to time, as confirmatory of the treatment of urethral stricture now proposed and herein recommended; but they are the most favorable which have occurred in the brief space since my return from Europe, and are presented to sustain the following new positions:

1st. That while dilatation is the proper treatment for Stricture of the Urethra, *this* has hitherto failed to effect a cure, because in the ordinary mode of applying it, *the seat of the disease has not specially been acted upon by the dilating instruments.*

2d. To cure Stricture, the *orifice* of the urethra must be so enlarged that the *canal beyond it may be dilated to its original size*, which we ought to recollect is about *twice* that of the opening leading to it. Instead therefore of being satisfied with introducing bougies of *two lines in diameter* through a restricted portion, they should measure *four to five lines* in thickness.

3d. *There is no necessity to confine a patient to bed* in treating stricture; *once an instrument has been introduced, it has done all it can to expand the passage and should be withdrawn, that others larger in size may be immediately substituted.* While this process ought to be cautiously and very gradually conducted, still the more rapidly and freely it can be applied, provided no pain is excited, the sooner the disease will be removed.

4th. By this method Strictures may be *permanently cured in a few days, without suffering, inconvenience, or exposure to serious consequences.*

Augusta, April, 1853.